

WE CLAIM:

1. A vacuum booster, comprising:
a booster housing defining a closed booster cavity, a longitudinal axis of
5 the booster, and a generally annular wall having a radially inward facing sealing surface
thereof; and
a booster power piston apparatus, including a power piston operatively
mounted within the booster housing for movement along the longitudinal axis of the
booster, having a sliding seal fixedly attached thereto and slidingly engaging the sealing
10 surface of the annular wall for axially dividing the closed booster cavity into a high
pressure cavity and a low pressure cavity.
2. The vacuum booster of claim 1, further comprising, an imperforate,
generally annular, seal support flange extending radially outward from the power piston
15 and defining an outer periphery thereof adapted for attachment of the sliding seal.
3. The vacuum booster of claim 2 wherein the sliding seal is a lip seal.
4. The vacuum booster of claim 2 wherein the seal support includes a collar
20 for attaching the seal support to the power piston at a juncture of the seal support and the
power piston, and a seal for sealing the juncture of the seal support and the power piston.

5. The vacuum booster of claim 2 further comprising:

a divider having an imperforate wall thereof fixedly attached and sealed to the booster housing and including a seal for sliding passage therethrough of the power piston, the divider dividing the closed cavity into a primary chamber and a secondary chamber, with the seal support flange dividing one of the primary or secondary chambers into a high pressure and a low pressure cavity thereof.

6. The vacuum booster of claim 5, further including:

a second seal support flange operatively attached to the power piston and dividing the other of the primary and secondary chambers into a high pressure and a low pressure cavity thereof;

and a second seal fixedly attached to the second seal support flange for sliding contact with the sealing surface of the booster housing.

7. The vacuum booster of claim 6, wherein the second seal is a lip seal.

8. The vacuum booster of claim 7, wherein the second seal support flange includes a generally annular shaped wall thereof having an outer surface in sliding sealing engagement with the divider, a first end thereof attached to the power piston in the primary chamber, and an imperforate radially extending flange thereof attached to the opposite end of the annular shaped wall of the second seal support flange and extending radially outward to a distal peripheral edge thereof adapted for attachment of the second seal.

9. The vacuum booster of claim 6 wherein:

the divider includes an annular wall thereof in the primary cavity having a radially inward facing surface thereof forming a portion of the sealing surface of the

5 housing in the primary cavity;

and the housing further includes an imperforate outer shell thereof spaced radially outward from the annular wall of the divider, to thereby form an air passage between the outer shell of the housing and the annular wall of the divider, the air passage providing fluid communication between the high pressure cavity of the primary chamber

10 and the high pressure cavity of the secondary chamber.

10. The vacuum booster of claim 9 wherein the divider further includes an

axially facing wall joined at a radially outer peripheral edge thereof to the annular wall of the divider, to thereby form a juncture of the axially facing wall with the annular wall of

15 the divider, and disposed between the primary and secondary chambers of the booster cavity.

11. The vacuum booster of claim 10 wherein the divider includes one or more

imperforate formed notches at the juncture of the axially facing wall and the annular wall

20 of the divider, the one or more formed notches providing fluid communication between the air passage and the high pressure cavity of the secondary chamber.

12. A power piston apparatus, for a vacuum booster including a booster housing defining a closed booster cavity, a longitudinal axis of the booster, and a generally annular wall having a radially inward facing sealing surface thereof, the power
5 piston apparatus comprising:

a booster power piston adapted to be operatively mounted within the booster housing for movement along the longitudinal axis of the booster; and

a sliding seal fixedly attached to the power piston and adapted for
slidingly engaging the sealing surface of the annular wall of the booster housing, for
10 axially dividing the closed booster cavity into a high pressure cavity and a low pressure cavity.

13. The power piston apparatus of claim 12, further comprising, an imperforate, generally annular, seal support flange extending radially outward from the
15 power piston and defining an outer periphery thereof having the sliding seal fixedly attached thereto.

14. The power piston apparatus of claim 13 wherein the sliding seal is a lip
20 seal.

15. The power piston apparatus of claim 13 wherein the seal support flange includes a collar for attaching the seal support to the power piston at a juncture of the seal support flange and the power piston, and a seal for sealing the juncture of the seal support
25 flange and the power piston.

16. The power piston apparatus of claim 15, wherein the booster housing further includes a divider having an imperforate wall thereof fixedly attached and sealed to the booster housing and including a seal for sliding passage therethrough of the power piston, the divider dividing the closed cavity into a primary chamber and a secondary chamber, with the seal support flange of claim 13 adapted for dividing one of the primary or secondary chambers into a high pressure and a low pressure cavity thereof, the power piston apparatus further comprising:

a second seal support flange operatively attached to the power piston for dividing the other of the primary and secondary chambers into a high pressure and a low pressure cavity thereof; and

a second seal fixedly attached to the second seal support flange and adapted for sliding contact with the sealing surface of the booster housing.

17. The power piston apparatus of claim 16, wherein the second seal is a lip seal.

18. The power piston apparatus of claim 17, wherein the second seal support flange includes a generally annular shaped wall thereof having an outer surface in sliding sealing engagement with the divider, a first end thereof attached to the power piston in the primary chamber, and an imperforate radially extending flange thereof attached to the opposite end of the annular shaped wall of the second seal support flange and extending radially outward to a distal peripheral edge thereof adapted for attachment of the second seal.

19. A method for constructing a vacuum booster, the method comprising:
providing a booster housing defining a closed booster cavity, a
longitudinal axis of the booster, and a generally annular wall having a radially inward
5 facing sealing surface thereof;
providing a booster power piston operatively mounted within the booster
housing for movement along the longitudinal axis of the booster, and having an
imperforate, generally annular, seal support flange extending radially outward from the
power piston and defining an outer periphery thereof, adjacent the sealing surface of the
10 booster housing, adapted for attachment of a sliding seal; and
sealing a juncture between the power piston and the sealing surface of the
housing with a sliding seal, fixedly attached to the outer periphery of the seal support
flange of the power piston and slidably engaging the sealing surface of the annular wall,
for axially dividing the closed booster cavity into a high pressure cavity and a low
15 pressure cavity.
20. The method of claim 19, wherein the sliding seal is a lip seal.